

300806(20)

B. E. (Eighth Semester) Examination, 2020

APR-MAY

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(New Scheme)

(Civil Engg. Branch)

DISASTER MANAGEMENT

Time Allowed : Three hours

Maximum Marks : 80

Minimum Pass Marks : 28

Note : All the questions are compulsory. Part (a) of each question is compulsory and answer any two parts out of (b), (c) & (d) of each question.

Unit-I

1. (a) What do you mean by Earthquake? 2

- (b) Describe about the concept of cyclones, its solution and causes. 7

- (c) What is floods? Explain the causes of floods and its control. 7
- (d) Write short notes on : 7
- (i) Fire and other environmental disaster
 - (ii) Drought

Unit-II

2. (a) What do you mean by Disaster Zoning? 2
- (b) Explain the Hazard assessment. 7
- (c) Describe the environmental impact assessment. 7
- (d) Explain the behaviour of structures in disaster prone areas. 7

Unit-III

3. (a) Write the two causes of natural disaster. 2
- (b) What are the methods of mitigating damage during disaster? 7
- (c) Explain the damages during disasters and its control. 7

- (d) Explain the disaster risk reduction using : 7
- (i) Preparedness
 - (ii) Mitigation

Unit-IV

4. (a) Write the two names of cyclone in India. 2
- (b) What are the good management system during disasters? 7
- (c) Explain about the construction technology required for mitigation of damage of structures. 7
- (d) What are the earthquake zoning? And how the earthquake zoning is decided? 7

Unit-V

5. (a) What do you mean by term "relief"? 2
- (b) Discuss the salient features of short term relief measures. 7
- (c) Explain the long term relief measures. 7

(d) What are the measures "relief" applied in construction like residential building.

7

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B. E. (Eighth Semester) Examination, 2020

APR-MAY

(New Scheme)

(AEI, Bio Tech., Chem., Civil, CSE, Elect., EEE, EI, ET
& T, IT, Mech. Mining, Metallurgy Mechatronics,
Prod., Automobile, Agriculture Plastics Branch)

CONSTRUCTION MANAGEMENT

Time Allowed : Three hours

Maximum Marks : 80

Minimum Pass Marks : 28

*Note : Part (a) of each question is compulsory
carrying 2 marks. Attempt any two parts from
(b), (c) & (d) carrying 7 marks.*

Unit-I

1. (a) What is the need of Construction Management?

- (b) Discuss the various stages in life cycle of construction project with flow chart.
- (c) What precaution should be taken by an owner in selecting professional services? Enumerate all professional service in construction management.
- (d) Write note on :
 - (i) Role of Project Manager
 - (ii) Legal and regulatory requirements

Unit-II

2. (a) What is a Turnkey Project?
- (b) Explain the function of project management. Describe in brief.
 - (c) Write notes on :
 - (i) Owner's builder operation
 - (ii) Interpersonal behaviour in project organization with example
 - (d) How do you suggest leadership approach and motivation for project team? Explain in detail.

[3]

Unit-III

3. (a) What do you understand by design and construction process?
- (b) Why design and construction are considered as an integrated system? Explain in detail.
- (c) Write notes on :
- (i) Computer aided engineering
 - (ii) Value Engineering
- (d) What is the role of geotechnical engineering in construction process? Explain.

Unit-IV

4. (a) A power shovel with a dipper of one cubic yard capacity has a standard operating cycle time of 30 seconds. Find the daily standard production rate of showed.
- (b) Explain factor affecting job site productivity and also explain labour characteristics.
- (c) Explain material management.

[4]

- (d) Explain how inventory control affects the different categories of cost.

Unit-V

5. (a) What is initial capital cost?
- (b) Explain the unit cost method of estimation.
- (c) Explain the computer aided cost estimation in construction and operation costs.
- (d) Write short on :
- (i) Historical cost data
 - (ii) Method for allocation of joint cost

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**B. E. (Eighth Semester) Examination,
April-May 2020**

(Old Scheme)

(Civil Engg. Branch)

WATER RESOURCES ENGINEERING-II

Time Allowed : Four hours

Maximum Marks : 80

Minimum Pass Marks : 28

***Note : All questions are compulsory. Attempt Part
(a) of each question and any **two** part from
(b), (c) and (d).***

1. (a) Define drainage gallery. 2
- (b) Describe the various forces acting on gravity dam. 7
- (c) What are the various modes of Dam failure of gravity dam? Explain each one of them. 7

[2]

- (d) Explain elementary profile of dam. 7
2. (a) Define hydraulic jump. 2
- (b) Design & sketch the cross section of ogee spillways, when the maximum head over it is $1750 \text{ m}^3/\text{sec}$ and 3 m. The height of the spillways is restricted to 35 m. 7
- (c) Explain different types spillways. 7
- (d) Write a note on USBR stilling basin. 7
3. (a) Define the weir and barrage. 2
- (b) Draw a neat layout of diversion head-work and explain the function of each part. 7
- (c) Explain the causes of failures of weirs on permeable foundations. 7
- (d) Explain the design procedure for Glacis weir. 7
4. (a) Define canal falls. 2
- (b) Describe the procedure of designing sarda fall. 14

Or

[3]

- What are hydraulic gates? Describe different types of spillway gates with neat sketch.
5. (a) Define cross drainage work. 2
- (b) Explain Hind's method for the design channel transition. 14

Or

Discuss the design consideration for aqueduct.

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**B. E. (Eighth Semester) Examination,
April-May 2020**

(Old Scheme)

(Civil Engg. Branch)

COMPUTER APPLICATION IN CIVIL ENGG.

Time Allowed : Three hours

Maximum Marks : 80

Minimum Pass Marks : 28

Note : Attempt all units part (a) is compulsory. Attempt any two from (b), (c) and (d).

Unit-I

1. (a) Write the C++ program segment to check if the flow is laminar or not, if Reynolds number is given? 2
- (b) Write a C++ program to compute friction factor in case of turbulent flow. 7

[2]

- (c) Write a C++ program to compute discharge through circular open channel. 7
- (d) Write a C++ program to compute friction factor in case of laminar flow. 7

Unit-II

2. (a) Write a C++ program to convert an angle in degree into radians. 2
- (b) Write a program to convert whole circle bearing to Quadrantal bearing. 7
- (c) Write the program for computation of reduced levels of various points using height of instrument method. 7
- (d) Write a program to compute free float of all activities in a given CPM network. 7

Unit-III

3. (a) Write expression for void ratio in C++. 2
- (b) Write a C++ program to compute safe bearing capacity if soil cohesion and angle of internal friction are known. 7

[3]

- (c) Write a C++ program for the determination of horizontal and vertical hydraulic conductivities for flow through anisotropic soils. 7
- (d) Write a program to compute the safe bearing of soil if depth of water table is known. 7

Unit-IV

4. (a) Write the expression in C++ for computing maximum deflection in a simply supported beam carrying a uniformly distribution load. 2
- (b) Write a program to compute share force at every tenth point in a simply supported beam carrying a point load at the center of the beam. 7
- (c) Write an algorithm to compute bending moment and share force at every quarter point in a simply supported beam carrying a Uniformly Distributed Load (UDL). 7
- (d) Write a C++ program to determine the maximum share force at a given section of a simply supported beam subjected to a system of two rolling loads. 7

Unit-V

5. (a) Write the expression for moment of resistance of a balance section in C++. 2
- (b) Write an algorithm of design short axially loaded column. 7
- (c) Write a program to computer the permissible stress in bending compression for a laterally unsupported beam of given section. 7
- (d) Write the expression for permissible stress in axial tension for steel member in C++. 7

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APR-MAY

B. E. (Eighth Semester) Examination, 2020

(New Scheme)

(Civil Engg. Branch)

STRUCTURAL ENGINEERING DESIGN-IV

Time Allowed : Four hours

Maximum Marks : 80

Minimum Pass Marks : 28

Note : Every unit first part is compulsory and attempt any one of next two part. IRC 21 (2000) is allowed. IS 456 : 2000 & IS 3370 is allowed.

Unit-I

1. (a) What are the different types of combined footing used in structure and also elaborate about conditions when a particular type is adopted? 2

- (b) A combined rectangular footing is to be provided for two square columns of size 400 mm and 500 mm, carrying factored axial loads of 700 kN and 1200 kN respectively. The columns are located 3.8 m c/c, the distance from the centre of lighter, column to the boundary line is restricted to 0.8 m. Take safe bearing capacity of soil = 180 kN/m². Grade for concrete = M20 Grade of steel reinforcement = Fe 415. 14
- (c) Design a strap footing for two columns A and B, spaced 5 meter center to center. Column A 300 mm × 300 mm in size carries a load of 600 kN and is spaced at 0.6 meter from the property line. Column B, 400 mm × 400 mm in size, carries a load of 900 kN. The bearing capacity of soil is 120 km/m². Use M20 mix and Fe 415 steel. 14

Unit-II

2. (a) Draw the deflection profile of cantilever retaining wall and counterfort retaining wall. 2
- (b) Design a cantilever retaining wall to retain horizontal earthen embankment of height 3.5 m above the ground level. The earthen backfill is having a density of 17 kN/m³ and angle of internal friction is 35

[3]

- degree. The safe bearing capacity of the soil is 180 kN/m². The coefficient of friction between soil and concrete is assumed to be 0.4. Use M20 concrete and Fe 415 steel. 14
- (c) Design a counterfort retaining wall to retain 4.5 m high embankment above ground level. The safe bearing capacity of soil is 200 kN/m². The earthen backfill is horizontal and soil density is 15 kN/m³, with angle of internal friction is 30 degree. Coefficient of friction between soil and concrete is 0.45. Use M20 concrete and Fe 415 steel. 14

Unit-III

3. (a) Draw different types of joints used in water tank. 2
- (b) Design a circular water tank with flexible base for a tank 200000 liters capacity resting on ground. The depth of water taken at tank is to be 6 m, including a free board of 200 mm. Use M25 grade concrete and Fe 415 grade steel. Take density of water 9.8 kN/m³. 14
- (c) Design a circular tank with domical top and bottom of the tank consist of a dome having a central rise of 2.0 m. The capacity of tank is 300000 liters. The

depth of water is to be 4 m, including a free board of 200 mm. The tank is to be supported on masonry tower. Take the unit weight of water as 9.8 kN/m^3 . Use M25 grade concrete and Fe 415 grade steel. 14

Unit-IV

4. (a) What are the different classes of loading specified by Indian road congress for design of bridge? 2
- (b) What are the different types of loads, forces and stresses to be considered in designing super structures of bridges and culverts? Explain in detail. 14
- (c) Design a solid slab bridge for class A loading for the following data :
- Clear span : 5 m
- Clear width of roadways : 7.5 m
- Average thickness of wearing coat : 70 mm
- Use M20 mix. Take unit weight of concrete as 24 kN/m^3 . 14

Unit-V

5. (a) What are the different type of tensioned and post tensioned system? 2

- (b) A PSC beam, 200 mm wide and 300 mm deep, is prestressed with wires (area = 320 mm²) located at a constant eccentricity of 50 mm and carrying an initial stress of 1000 N/mm². The span of the beam is 10 m. Calculate the percentage loss of stress in wires if (a) the beam is pretensioned, and (b) the beam is post tensioned, using following data : $E_s = 210 \text{ kN/mm}^2$, $E_c = 35 \text{ kN/mm}^2$, Relaxation of steel stress = 5%, Shrinkage of concrete = 0.0003 for pretensioning and 0.0002 for post tensioning, creep coeff = 1.6, Slip at anchorage = 1 mm. 14
- (c) A PSC beam supports an imposed load of 5 kN/m over a simply supported span of 10 m. The beam has an "I" section with an overall depth of 450 mm. The thickness of the flange and web are 75 mm and 100 mm resp. The width of the flange is 230 mm. The beam is to be prestressed by an effective prestressing force of 350 kN at a suitable eccentricity such that the resultant stress at the soffit of the beam at the centre of the span is zero. Find the eccentricity required for the force. 14

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B. E. (Eighth Semester) Examination, 2020 ^{APR-MAY}
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(New Course)

(Civil Engg. Branch)

STRUCTURAL ANALYSIS-III

Time Allowed : Three hours

Maximum Marks : 80

Minimum Pass Marks : 28

*Note : Part (a) of each questions is compulsory.
Solve any one question from (b) and (c)
carrying equal marks.*

Unit-I

1. (a) Write assumptions made in cantilever method of approximate analysis. 2
- (b) Analyze the frame shown in figure using portal method of approximate analysis. 14

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[2]

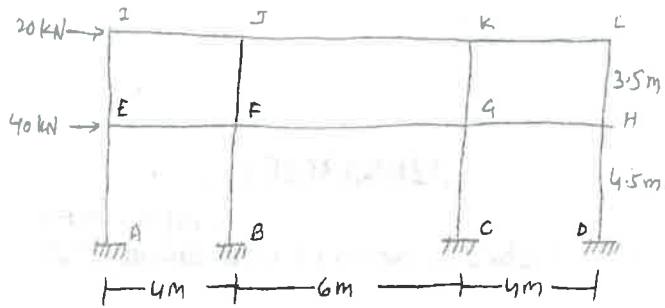
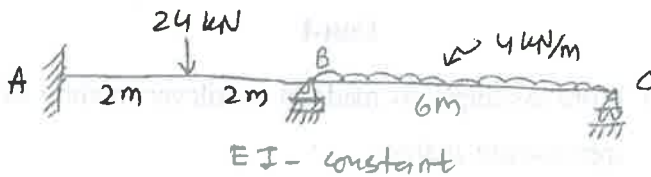


Fig.-(1)

- (c) Analyze the frame as shown in Q.-1(b) using cantilever method of approximate analysis. 14

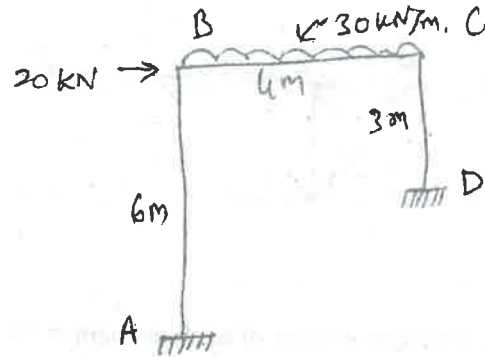
Unit-II

2. (a) Give any two properties of flexibility method or force method. 2
- (b) Analyze the continuous beam shown in figure using flexibility method. 14



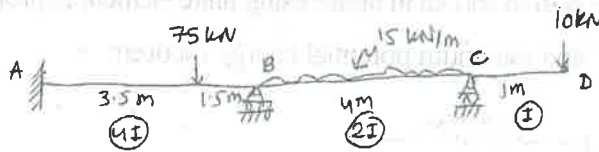
- (c) Analyze the portal frame using flexibility method or force method. 14

[3]



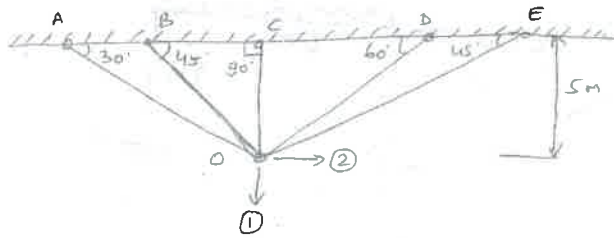
Unit-III

3. (a) Write any two properties of stiffness method or displacement method. 2
- (b) Analyze the continuous beam as shown in figure using stiffness method or displacement method. 14



- (c) Develop stiffness matrix with reference to the given coordinates as shown in figure pin jointed structure. 14

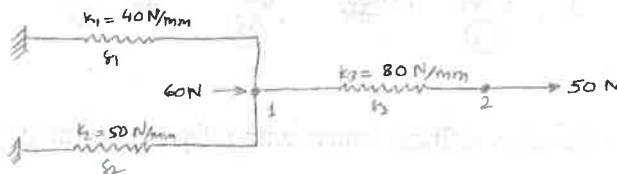
[4]



Area of cross section of each element = 2000 mm^2
 $E = 200 \text{ GPa}$.

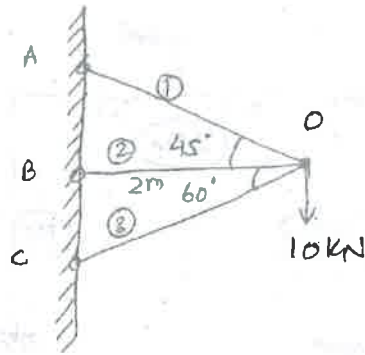
Unit-IV

4. (a) Give any two advantages of finite element analysis over classic method of Analysis. 2
- (b) Determine the displacements of nodes of the spring system shown in figure using finite element approach and minimum potential energy theorem. 14



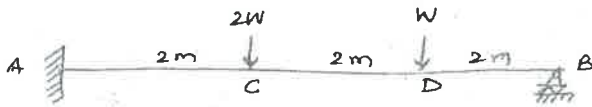
- (c) Determine member forces of a three bar element as shown in figure using minimum potential energy theorem. 14

[5]



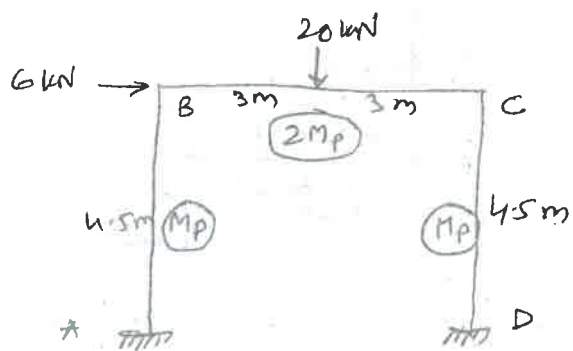
Unit-V

5. (a) Explain collapse mechanism and write types mechanism. 2
- (b) For the propped cantilever as show in figure, determine collapse load W_c . The beam is prismatic having plastic moment capacity equal to M_p . 14



- (c) Find the value of M_p for a portal and loaded up to collapse as shown in figure. 14

[6]



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APR-MAY

B. E. (Eighth Semester) Examination, 2020

(New Scheme)

(Civil Engg. Branch)

**ENVIRONMENTAL POLLUTION and
MANAGEMENT**

Time Allowed : Three hours

Maximum Marks : 80

Minimum Pass Marks : 28

*Note : Part (a) is compulsory and answer any two
question from (b), (c) and (d)*

Unit-I

1. (a) Write in short sources of thermal and radioactive pollution. 2

- (b) Describe the following environmental protection laws in India :
- (i) Indian standard of air pollution act
 - (ii) Wildlife (Protection) Act 7
- (c) Write in detail international concern for environment. 7
- (d) Describe in detail environmental problem in India. 7

Unit-II

2. (a) What do you mean by population forecasting? 2
- (b) Detail the environmental impacts of increase in population. 7
- (c) Explain the term population explosion giving suitable examples. 7
- (d) Discuss the various steps, which may be design to reduce population growth. 7

Unit-III

3. (a) Define Social Research. 2

- (b) Explain the different approaches of research methodology with suitable examples. 7
- (c) What are the approaches to solve environmental problem? 7
- (d) Give the classification of waste collection system. Explain the system in detail. 7

Unit-IV

4. (a) Define solid waste. 2
- (b) What is the difference between landfill and composting? 7
- (c) Explain in brief Environmental Audit. 7
- (d) What are the criteria for the disposal of hazardous substances according to MOEF management and handling? 7

Unit-V

5. (a) Define sustainable development. 2
- (b) Explain in brief renewable energy sources. 7

- (c) What is the important measure adopted for sustainable development? 7
- (d) Explain in brief environmental impact assessment. 7

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Roll No. :

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B. E. (Eighth Semester) Examination, 2020

APR-MAY

(New Scheme)

(Civil Engg. Branch)

AIR POLLUTION and CONTROL MEASURES

Time Allowed : Three hours

Maximum Marks : 80

Minimum Pass Marks : 28

Note : Attempt all questions. Part (a) is compulsory in each question. Attempt any two parts from (b), (c) and (d) part of each question.

Unit-I

1. (a) Define Air Pollution. 2
- (b) Briefly explain the classification of pollutants, also write about their characteristics and sources. 7

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[2]

- (c) Describe stack sampling techniques and also describe the selection of sampling location. 7
- (d) Write short notes on : 7
- (i) Photochemical smog
 - (ii) Stack gases
 - (iii) Aerosols.

Unit-II

2. (a) Explain Meteorology. 2
- (b) Describe the classification of plume behaviours with well labelled diagram. 7
- (c) Explain in brief Gaussian plume model with assumptions and limitations. 7
- (d) Write short notes on : 7
- (i) Wind Rose
 - (ii) Wind profile

Unit-III

3. (a) What is particulate matters. 2

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[3]

- (b) Describe the removal techniques adopted for particulate matter. 7
- (c) Explain in brief effect of Sox on plant, animal, human and material. 7
- (d) Write short notes on : 7
- (i) Control and prevention of sox
 - (ii) Nox sources
 - (iii) Effect of Nox on plant

Unit-IV

4. (a) Write the any five name of special diseases caused by air pollution. 2
- (b) Describe the effects of photochemical smog on plants. 7
- (c) Describe the mechanism of deterioration in polluted atmosphere. 7
- (d) Explain the various kind of injury to plant due to air pollutants. 7

Unit-V

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[4]

5. (a) Write the full form of PAN? 2
- (b) Describe the principle and construction of fabric filters with well labelled diagram. What are the factor affecting the efficiency of fabric filters? 7
- (c) Write short notes on : 7
- (i) Acid Rain
- (ii) Ozone Layer depletion
- (d) Write a short note on Air pollution control act. 7

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B. E. (Eighth Semester) Examination, 2020

APR-MAY

(New Scheme)

(Civil Engg. Branch)

**COMPUTER APPLICATIONS in CIVIL
ENGINEERING**

Time Allowed : Three hours

Maximum Marks : 80

Minimum Pass Marks : 28

Note : Attempt all questions. Part (a) from each question is compulsory, Attempt any two parts from parts (b), (c) and (d) of each question. Use C++ programming language to solve all the questions. Assume suitable data where necessary.

Unit-I

1. (a) Write the expression for Reynolds number in C++. 2

- (b) Write a program to compute friction for turbulent flow. 7
- (c) Write a program to compute discharge through open rectangular channel, if depth is known. 7
- (d) Draw a flow chart to check whether the flow is laminar or turbulent. 7

Unit-II

2. (a) Write expression to convert degree into radians and radians into degree. 2
- (b) Write a program to convert whole circle bearing to reduced bearing. 7
- (c) Write the program for computation of reduced levels using rise and fall method. 7
- (d) Write an algorithm to convert whole circle bearing to Quadrantal bearing. 7

Unit-III

3. (a) Write the expression for computing porosity in C++. 2

- (b) Write a C++ program to compute safe bearing capacity of soil, assuming that the depth of water table is at the level of foundation. 7
- (c) Write an Algorithm for the determination of horizontal and vertical hydraulic conductivities for flow through anisotropic soils. 7
- (d) Write a program to determine the one dimensional pre consolidated settlement under compacted fill. 7

Unit-IV

4. (a) Write the expression in C++ for computing bending moment at the fixed end of a beam carrying uniformly distributed load. 2
- (b) Write a program to compute deflection at every quarter point in a simply supported beam carrying a uniformly distributed load. 7
- (c) Write an algorithm to compute bending moment and share force at every quarter point in a simply supported beam carrying a uniformly distributed load (udl). 7

[4]

- (d) Write a C++ program to compute the support reactions in a simply supported beam subjected to point load. 7

Unit-V

5. (a) Draw a flow chart for moment of resistance of a balanced section. 2
- (b) Write a program to compute the effective area of single angle tension members, connected by one leg to the gusset plate. 7
- (c) Write a program to compute area of steel in an under reinforced section by limit state method, if factored moment at a section is given. 7
- (d) Write an algorithm to compute the permissible stress in bending compression for a laterally unsupported beam of given section. 7

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APR-MAY

B. E. (Eighth Semester) Examination, 2020

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(New Scheme)

(Civil Engg. Branch)

OPEN CHANNEL FLOW

(Professional Elective)

Time Allowed : Three hours

Maximum Marks : 80

Minimum Pass Marks : 28

Note : Attempt any three parts of each question.

Part (a) is compulsory.

Unit-I

1. (a) Identify the type of flow for the following : 2
- (i) A flood wave while passing down a river section

[2]

protected by embankments, spills over the embankment at certain locations

- (ii) Sudden opening of sluice gate
- (b) At a section in a channel expansion the velocity over a quarter of the cross section is zero and is uniform over the remaining three-fourths of the area. Find average velocity, kinetic energy correction factor and momentum energy correction factor. 7
- (c) A trapezoidal channel is 5.0 m wide and has a side slope of 0.5 horizontal : 1 vertical. Find the depth of flow which can make the channel an efficient section. If $S_0 = 0.0002$ and $n = 0.02$, find the corresponding discharge. 7
- (d) Explain the term conveyance and second hydraulic exponent clearly and find out an approximate expression for second hydraulic exponent. 7

Unit-II

2. (a) A triangular channel with an apex angle of 60° has a critical depth of 0.25 m. The discharge in the channel is m^3/s . 2

[3]

- (b) Water flows in a 3.0 m wide rectangular channel at a velocity of 2.5 m/s and a depth of 1.8 m. If at a section there is a smooth upward step of 0.30 m. What width is needed at that section to enable the critical flow to occur on the hump without any change in the upstream depth. 7
- (c) The alternate depths for a certain flow in a rectangular channel are 0.7 m and 3.0 m respectively. Estimate the critical depth for the flow in a channel. 7
- (d) Discuss the transition in canal due to width contraction for super critical flow. 7

Unit-III

3. (a) A rectangular channel has $B = 20$ m, $n = 0.020$ and $S_0 = 0.0004$. If the normal depth is 1.0 m, a depth of 0.8 m in a GVF in this channel is a part of GVF profile. 2
- (b) A 3.0 m wide rectangular channel has a longitudinal slope of 150 mm/km and Manning's $n = 0.02$. When the discharge in the channel is 0.85 m³/s estimate the slope of the water surface in the channel (relative to the horizontal) at a point where the depth of flow is 0.75 m. 7

- (c) Sketch the GVF profiles produced on the following break in grade : 7
- (i) Mild to steep
 - (ii) Steep to mild
 - (iii) Mildes to mild
- (d) Describe the method of direct integration of GVF differential equation for GVF computations. 7

Unit-IV

4. (a) Define strong jump in a rectangular channel. 2
- (b) In a 3.0 m wide horizontal, rectangular channel, a hydraulic jump takes place with initial Froude number of 10.25. The sequent depth ratio of the jump is 14.0. Estimate (a) the relative energy loss (b) Froude number of flow exiting the jump. 7
- (c) Discuss the following sections for jump in horizontal non rectangular channel : 7
- (i) Basic equation
 - (ii) Sequent depth ratio
- (d) Describe the case of positive surge moving upstream. 7

[5]

Unit-V

5. (a) Define unsteady and steady spatially varied flow with example. 2

(b) Write short notes on : (any **four**) $4 \times 3\frac{1}{2} = 14$

(i) Differential equation of SVF with increasing discharge

(ii) Classification of SVF with increasing discharge

(iii) Profile computation of SVF with increasing discharge

(iv) Side weir

(v) Control point of SVF with increasing discharge

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Roll No. :

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B. E. (Eighth Semester) Examination, 2020

(New Scheme)

(Civil Engg. Branch)

WATER SHED MANAGEMENT

Time Allowed : Three hours

Maximum Marks : 80

Minimum Pass Marks : 28

Note : Attempt all questions. Part (a) of each question is compulsory. Solve any two from part (b), (c) and (d).

Unit-I

1. (a) Define watershed and explain it with neat sketch. 2
- (b) What are the important characteristics of watershed?
Explain with neat sketches. 7

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- (c) What do you mean by water requirement of crops?
Discuss the factors affecting the water requirement of crops. 7
- (d) What are the various of soil? Discuss their availability in various regions of India. 7

Unit-II

- 2. (a) What do you mean by land capability? 2
- (b) What are the various objectives of land capability classification? 7
- (c) Explain the land capability classification by a neat sketch. 7
- (d) Enlist and explain various types of Burveys carried out for a watershed. 7

Unit-III

- 3. (a) Define soil erosion. 2
- (b) What are the various types and causes of soil erosion? 7

[3]

- (c) Define water harvesting. Explain the methods of water harvesting with neat sketches 7
- (d) Discuss the agronomical measures in soil and water conservation. 7

Unit-IV

4. (a) Discuss the watershed management and its benefits. 2
- (b) Explain the role of people participation in watershed management. 7
- (c) What is the importance of socio-economic analysis of watershed management projects? 7
- (d) Describe various application of GIS in watershed management. 7

Unit-V

5. (a) Why slope conservation is required? 2
- (b) What are the methods available for hill slope conservation? Explain. 7

[4]

(c) Explain the causes of bad land in watershed. 7

(d) Write a detail note on bad land development. 7

320876(20)

**B. E. (Eighth Semester) Examination,
April-May 2020**

(Old Scheme)

(Civil Engg. Branch)

ANALYSIS of FRAMED STRUCTURE

Time Allowed : Three hours

Maximum Marks : 80

Minimum Pass Marks : 28

***Note : Part (a) in all question is compulsory. Solve
any one from (b) or (c) in each question.
Assume any other suitable data required.***

Unit-I

1. (a) Explain rotation factor in Kani's method. 2
- (b) Analyse the continuous beam loaded in fig. 1, by
Kani's method. Sketch BM diagram : 14

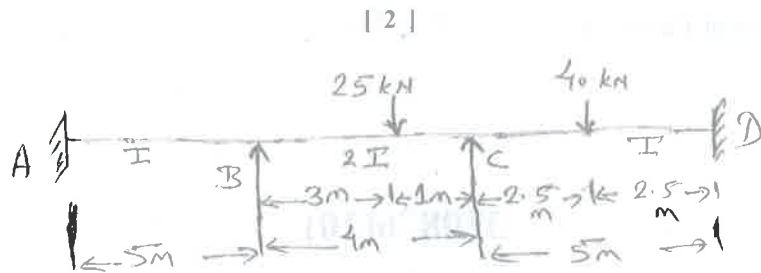


Fig. 1

- (c) Analyse the continuous beam loaded as shown in fig. 2 by the slope deflection method. Sketch the B.M. and S.F. diagrams. 14

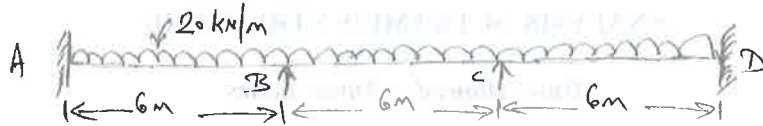


Fig. 2

Unit-II

2. (a) Explain Portal frame. 2
- (b) Analyse the frame shown in fig. 3 for horizontal force by approximate method (Portal method). 14

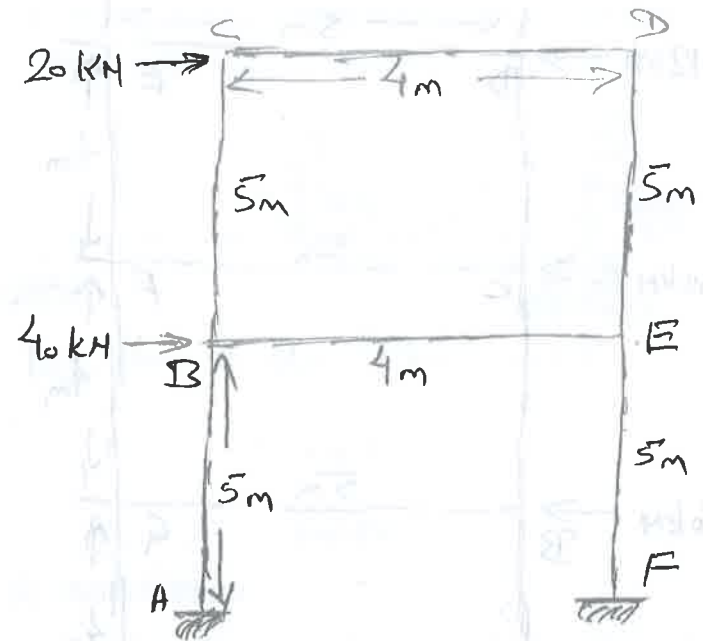


Fig. 3

- (c) Analysis the frame shown in fig. 4 by approximate method. 14

[4]

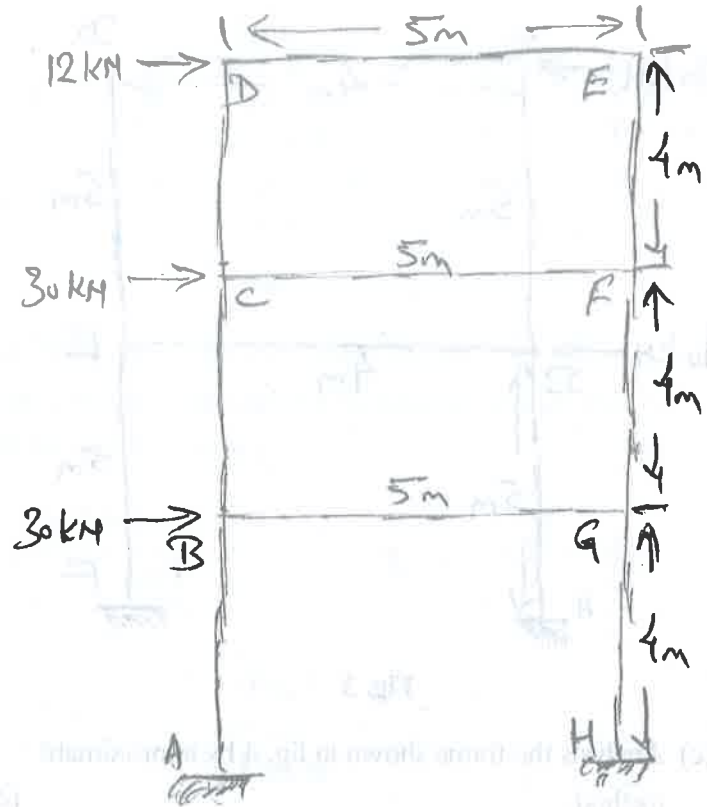


Fig. 4

Unit-III

3. (a) Define flexibility. 2
 (b) Analyse the structure having degree of freedom more than one. 14

[5]

- (c) Develop the flexibility matrix for the simply supported beam in fig. 5. 14

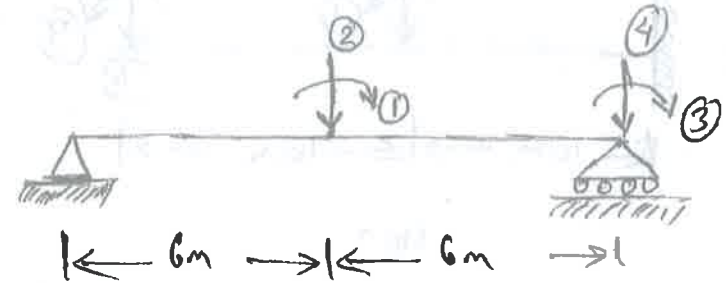


Fig. 5

Unit-IV

4. (a) Define Stiffness. 2
 (b) Develop the stiffness matrix for the sets of springs shown in fig. 6. 14

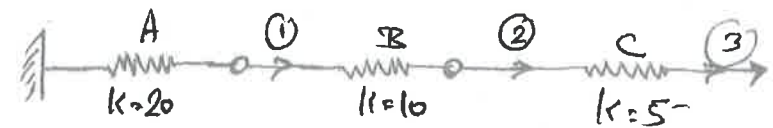


Fig. 6

- (c) Develop stiffness matrixes for the beam AB with reference to the co-ordinates shown in fig. 7. 14

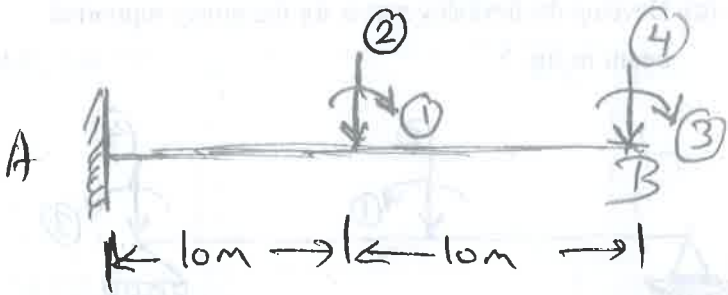


Fig. 7

Unit-V

5. (a) What is the need to study FEM? 2
- (b) Write the steps involved in finite element analysis. 14
- (c) Discuss the Rayleigh Ritz finite elements method and Galerkin's method for FEM. 14